Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/900,506	KOTLIKOV ET AL.
	Examiner	Art Unit
	Dennis Rosario	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>29 December 2005</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-34 and 39-42</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-34 and 39-42</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>7/6/2001 & 10/01/2001</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some * c) ☐ None of:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The amendment was received on December 29, 2005. Claims 1-34 and 39-42

are pending.

Response to Arguments

2.   Applicant's arguments filed 12/29/2005 have been fully considered but they are

not persuasive and states on page 10, last paragraph:

"Lawton does not...teach...the 'rotating [of] the virtual frame to align the central

axis of the virtual frame with the central axis of the [object or] defect, wherein the

rotating operation defines a rotated virtual frame and includes sub-pixel sampling

individual pixels in the virtual frame to define a corresponding new pixel within the

rotated virtual frame.'"

However, the examiner respectfully disagrees since Lawton et al. (US

Patent 6,266,054 B1) does teach the rotating of the virtual frame (or "to position

a...rectangle...over a portion" in col. 6, line 14) to align the central axis of the virtual

frame with the central axis of the [object or] defect(as shown in fig. 11), wherein the

rotating operation defines a rotated virtual frame (fig. 11,num. 68) and includes sub-

pixel sampling individual pixels (via a "7 X 7 matrix" in col. 8, line 19 as shown in fig. 10

is a sample of all of the pixels of fig. 10,num. 68.) in the virtual frame array (Figs. 10 and

11, num. 68) to define a corresponding new pixel (or the center pixel of the 7 X 7 martix)

within the rotated virtual frame.

Note that Lawton positions a rectangle and does not use the word rotation where

any one rectangle of fig. 4B,num. 68 is positioned as shown. Thus, if a rectangle is

present then the rectangle has to first be moved so that the rectangle can be positioned

over a portion as shown in figure 4B, num. 68 with a specific "orientation" in col. 6, line

57 as shown in figures 6A and 6B. Thus, the above-mentioned "position

a...rectangle...over a portion" is interpreted as rotating a rectangle over a portion in

order to obtain a specific orientation as shown in figures 6A and 6B.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-3,5-10,12-34 and 39-42 rejected under 35 U.S.C. 103(a) as being

unpatentable over Barkan et al. (US Patent 6,014,471 A) in view of Lawton et al. (US

Patent 6,266,054 B1).

Regarding claim 1, Barkan et al. teaches a method of removing an object from a

digital image derived from digital image data the method comprising:

    a)   displaying the digital image (Fig. 1, num. 25);

    b)   specifying a sub-region (Fig. 1,numerals 26, 28, 32, 34 represent values

that specify a sub-region as shown in figure 2.) of the displayed digital image (Fig. 1,

num. 25) that contains at least a part of the object (Fig. 2,num. 30) and another sub-

region (Fig. 2,num. 42) of the displayed digital image (Fig. 1,num. 25) that does not

contain the object (Fig. 2, num. 42 does not contain the object because 42 surrounds

the object 30.);

    c)   identifying the object to be removed ("RETOUCHED" in fig. 3A,num. 114)

by categorizing the digital image data (Fig. 5,num. 208 categorizes or classifies pixels.)

in the sub-region (Fig. 2) that contains at least a part of the object (fig. 2,num. 30) into

an object region (Fig. 2,num. 30 indicates a region of pixels to be classified.) and a non-

object region (fig. 2,num. 42 indicates a region of pixels to be classified.);

d)   modifying ("replacing" in col. 5, line 40) the digital image data (fig. 2,num. 30) of the object region to more closely resemble (via replacing fig. 2, num. 30 with...) the digital image data of the non-object (...fig. 2, num. 42 as mentioned in col. 5, lines 38-41.); and

e)   combining noise ("adding...noise" in col. 5, line 46 or "adding noise" in col. 5, line 53.) into the modified digital image data ("replaced" in col. 5, lines 45 and 53) of the object region (fig. 2,num. 30).

Barkan et al. does not disclose the limitation of:

a)   wherein the virtual frame has a central axis, and the object has a central axis

b)   rotating the virtual frame to align the central axis of the virtual frame with the central axis of the object, wherein the rotating operation defines a rotated virtual frame and includes sub-pixel sampling individual pixels in the virtual frame to define a corresponding new pixel within the rotated virtual frame.

However, Barkan et al. does teach "plac[ing]" in col. 6, line 47 fig. 4,num. 54 "in accordance with...defects" in col. 6, lines 48,49 or "centering" in col. 6, line 55 which does suggest using a sequence of aligning steps in order to place fig. 4,num. 54 "in accordance with...defects" in col. 6, lines 48,49

Lawton et al. teaches the remaining limitations not taught by Barkan et al.:

a)   wherein the virtual frame (Figs. 10 and 11,num. 68 is a virtual frame.) has

a central axis (Figs. 10 and 11,num. 68 is a virtual frame that has an "axis" as shown in

fig. 11.), the defect has a central axis (Figs. 10 and 11,num. 68 is a virtual frame that

has an "axis" as shown in fig. 11 which goes through the defect or shaded area, thus

the defect has the same axis as the virtual frame.), and further comprising:

b)   rotating the virtual fame (Figs. 10 and 11,num. 68 is a virtual frame that is

rotated as shown in fig. 4B.) to align the central axis of the virtual frame with the central

axis of the object (Figs. 10 and 11,num. 68 is a virtual frame that is rotated as shown in

fig. 4B to align the central axis of the virtual frame 68 and the central axis of the defect

that are aligned with each other as shown in fig. 11.), wherein the rotating operation

defines a rotated virtual frame (fig. 11,num. 68) and includes sub-pixel sampling

individual pixels (via a "7 X 7 matrix" in col. 8, line 19 as shown in fig. 10 is a sample of

all of the pixels of fig. 10,num. 68.) in the virtual frame array (Figs. 10 and 11, num. 68)

to define a corresponding new pixel (or the center pixel of the 7 X 7 martix) within the

rotated virtual frame.

It would have been obvious at the time the invention was made to one of

ordinary skill in the art to modify Barkan et al.'s teaching of placing fig. 4,num. 54 with

Lawton et al.'s teaching of figure 4B, because Lawton et al. shows a means that was

deficient in Barkan et al.'s teaching of placing and centering.

Regarding claim 2, Barkan et al. discloses the method of claim 1 wherein the

digital image data (Fig. 2) is provided in a format that describes a perceptual color

("color...values" in col. 6, line 60 are inherently perceived to a person.) space (fig. 5,

num. 50 represents a space or area that uses the color values.).

Regarding claim 3, Barkan et al. discloses the method of claim 2 wherein the

perceptual color space is selected from perceptual color spaces having a lightness

component ("luminance" in col. 6, line 58).

Regarding claim 5, Barkan et al. discloses the method of claim 2 wherein the

object (figs. 1 and 2, num. 30) is a defect ("defect" in col. 4, line 43).

Claim 6 is rejected the same as claim 5. Thus, argument similar to that

presented above for claim 5 is equally applicable to claim 6.

Regarding claim 7, Barton et al. discloses the method of claim 1 wherein the

noise is estimated (via a "statistical variation" in col. 5, line 47 such as a "mean" in col.

7, line 1 where the mean is an approximate representation or estimate of a plurality of

values.) from image data in a vicinity (Fig. 4, num. 54) of the object (Fig. 4, num. 52).

Claims 8-10 and 18 are rejected the same as claim 7. Thus, argument similar to

that presented above for claim 7 is equally applicable to claims 8-18.

Regarding claim 12, Barkan et al. discloses the method of claim 1 wherein object

regions (fig. 2,num. 30) and non-object regions (fig. 2,num. 42) are designated by

application of a threshold value (fig. 5,num. 206 and fig. 7/1,num. 500 and 510)) for at

least one component (Fig. 7/1: label "SIZE" component) of the digital image data for a

pixel.

Claims 13 and19 are rejected the same as claim 12. Thus, argument similar to

that presented above for claim 12 is equally applicable to claims 13 and 19.

Regarding claim 14, Barkan et al. discloses the method of claim 1 wherein the

modifying of the digital image data of the object region to more closely resemble the

digital image data of the non-object region includes: .

a)   interpolation of non-defect data ("average...of...area 42" in col. 5, lines

43,44. Note that 42 is the non-defect data).

Claims 15,16,20,21 and 22 are rejected the same as claim 14. Thus, argument

similar to that presented above for claim 14 is equally applicable to claims 15,16,20,21

and 22.

Regarding claim 17, Lawton et al. discloses the method of claim 1 wherein the

noise is random noise ("random noise" in col. 5, line 46).

Claim 23 is rejected the same as claim 17. Thus, argument similar to that

presented above for claim 17 is equally applicable to claim 23.

Regarding claims 24-27, Barkan et al. discloses a computer and software in the

memory of a computer (as shown in fig. 1, num. 10 and 14, respectively.)

Regarding claim 28, Barkan et al. discloses the method of claim 1 wherein the

displaying operation comprises:

a)   displaying the digital image to a user (Fig. 1,num. 25 is a displayed image

to a user interface 24 and 22; thus a user views a displayed image.), and

b)   the specifying operation (Fig. 1,numerals 26, 28, 32, 34 represent values

that specify a sub-region as shown in figure 2.) comprises:

        b1)   receiving input from the user (via interface fig. 1, num. 24 and 22) specifying a location (via the method of fig. 7/1) of a virtual frame (fig. 1, num. 30 has an associated virtual frame.) within the displayed digital image (fig. 1, num. 25),

       c)   the virtual frame (fig. 1, num. 30 has an associated virtual frame.) defining

        c1)   the sub-region (fig. 2) of the displayed digital image that contains the at least a part of the object (fig. 2, num. 30) and

        c2)   the sub-region of the displayed digital image that does not contain the object (fig. 2, num. 42).

Claim 29 is rejected the same as claims 1 and 24. Thus, argument similar to that presented above for claims 1 and 24 is equally applicable to claim 29.

Claim 30 is rejected the same as claim 28. Thus, argument similar to that presented above for claim 28 is equally applicable to claims 30.

Claim 31 is rejected the same as claims 1 and 28. Thus, argument similar to that presented above for claims 1 and 28 is equally applicable to claim 31.

Regarding claim 32, Barkan et al. discloses the method of claim 31 wherein the defect sub-region (fig. 2,num. 30) is adjacent (via making fig. 2,num. 40 "smaller" in col. 5, line 35. Currently, fig. 2,num. 40 is one pixel wide and to make fig. 2,num. 40 would result in fig. 2,num. 30 being adjacent to fig. 2,num. 42 provided that fig. 2,num. 42 is made "larger" in col. 5, line 35) to the non-defect sub-region (fig. 2,num. 42) in the digital image.

Regarding claim 33, Barkan et al. discloses the method of claim 31 wherein the array of interest (fig. 1, num. 30 has an associated virtual frame as shown in fig. 4 by the bold outer perimeter.) is aligned ("placed" in col. 6, line 47) with a column (note that fig. 4 inherently has a plurality of columns) of pixels (or a plurality dashed squares as shown in fig. 4) in the digital image.

Claims 34 is rejected the same as claim 33. Thus, argument similar to that presented above for claim 33 is equally applicable to claim 34.

Claim 39 is rejected the same as claim 30. Thus, argument similar to that presented above for claim 30 is equally applicable to claim 39.

Claims 40,41,42 are rejected the same as claims 32,33 and 34,respectively. Thus, argument similar to that presented above for claims 40,41,42 are equally applicable to claims 32,33 and 34, respectively.

5.   Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barkan et al. (US Patent 6,014,471 A) in view of in view of Lawton et al. (US Patent 6,266,054 B1) further in view of Hino (US Patent 5,956,015 A).

Regarding claim 4, Barkan et al. teaches the method of claim 2 wherein the perceptual color space (or "other values" in col. 6, line 62) is selected from the group consisting of CIE L*u*v* and CIE L*a*b* color spaces.

Barkan et al. does not teach the additional limitation of CIE L*u*v* and CIE L*a*b* color spaces, but does suggest "other values" in col. 6, line 62 can be used.

However, Hino teaches the additional limitation of a perceptual color space (A "CIE LAB" in column 3, lines 7,8 perceptual color space as suggested by Barkan et al.) that is selected (A "CIE LAB" in column 3, lines 7,8 perceptual color space is used over another space in column 3, lines 7,8.) from perceptual color spaces consisting of CIE L*u*v and CIE L*a*b color spaces (A "CIE LAB" in column 3, lines 7,8 perceptual color space is used over another space in column 3, lines 7,8: CIE LUV in column 3, line 2.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Barkan et al.'s teaching of "other values" in col. 6, line 62 with Hino's teaching of the CIE LAB color space, because the CIE LAB color space compensates for visual effects of the human visual system in column 2, line 57 to column 3, line 4.

Claim 11 is rejected the same as claim 4. Thus, argument similar to that presented above for claim 11 is equally applicable to claim 4.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ghislain Bossut et al. (US Patent 6,750,988 B1) is pertinent as teaching a method of using a bounding box relative to an edge (Fig. 3, num. 360) in the context of angles (fig. 3,num. 390).

Vallmajo et al. (US Patent 6,791,723 B1) is pertinent for the same reasons as Ghislain Bossut et al. (US Patent 6,750,988 B1).

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.
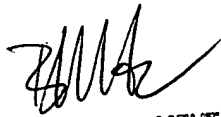
8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dennis Rosario whose telephone number is (571) 272-

7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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